

## AGC/WSDOT Structures Team Minutes

### June 18, 2004

#### Members in Attendance

<b>Attendees:</b>	<b>Company</b>	<b>Phone</b>	<b>E-mail</b>
Ayers Scott	Wilder Const.	425-508-3246	<a href="mailto:scottaye@wilderconstruction.com">scottaye@wilderconstruction.com</a>
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Becher Dave	WSDT-NWR	425-649-4429	<a href="mailto:becherd@wsdot.wa.gov">becherd@wsdot.wa.gov</a>
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Foster Marco	WSDOT-NWR	360-428-1593	<a href="mailto:fosterm@wsdot.wa.gov">fosterm@wsdot.wa.gov</a>
Kapur Jugesh	WSDOT_HQ	360-705-7209	<a href="mailto:kapurju@wsdot.wa.gov">kapurju@wsdot.wa.gov</a>
Leachman Dan	Kiewit Const.	425-255-8333	<a href="mailto:dLeachman@kiewit-PBD.com">dLeachman@kiewit-PBD.com</a>
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McCoy Charlie	Atkinson Const.	425-255-7551	<a href="mailto:charlie.mccoy@atkn.com">charlie.mccoy@atkn.com</a>
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Shettler Jim	Jacobs Civil	206-383-6322	<a href="mailto:Jim.schettler@jacobs.com">Jim.schettler@jacobs.com</a>
Sheikhizadeh M.	WSDOT-HQ	360-705-7828	<a href="mailto:sheikhm@wsdot.wa.gov">sheikhm@wsdot.wa.gov</a>

The meeting began at 9:00 AM. May 7, 04 meeting notes were reviewed and approved with addition of Ryan's name to the list of attendees for the May meeting. Jack Echland attended the meeting for John Quigg.

#### **Lead Team Report**

Charlie gave a brief report of the lead team meeting.

- Applications for the contract administration awards are out
- Price escalation has been noticed nationally for cement, fly ash, and fuel in addition to steel. WSDOT is monitoring the prices.
- Environmental training will be offered to the Region personnel
- Implementation for use of ultra low sulfur diesel fuel is being negotiated with the resource agencies
- The updated Gray Book is published for this quarter

**Action plan:** This is for the team's information and no action plan is necessary

#### **WACA Workshop**

Mo informed the team that the workshop for this year was cancelled due to difficulties with securing the Fife Best Western facility.

**Action plan:** This is for the team's information and no action plan is necessary

### **Changes to the Retaining Wall Backfill Waiting Period Std. Specs 2-09.3(1)E**

Mo handed out the draft changes to this segment of the Specs based on the May 7 discussions. The team was in agreement for the contents of the changes with a few editorial changes.

**Action Plan:** The team members will E-mail Mo any further comments before Monday June 21. Mo will place the proposed changes to this Spec in the next amendment package.

### **Pile Quantities in Plans**

Jugesh asked the team about inclusion of rebar quantities for piles on plan sheets similar to the shaft rebar quantities. The difference is that the pile rebar quantities are based on estimated tip elevations and actual quantities are not known till a test pile is placed. The following comments were provided:

- Cage rebar weights, even though approximate, provide a quick estimate for lifting
- Can save some time during the bidding
- It is a reality check for the Contractors
- Make sure there is a qualifying statement that the weights are based on estimated tip elevations

**Action plan:** Recommend placing the pile rebar quantities on the plan sheets with a note indicating that the quantities are based on estimated tip elevation. No further action by the team is needed.

### **Pre-cast Substructure Research**

Jugesh indicated that the researchers from the University of Washington have requested participation of a few Contractors for their feed back at their next meeting. Mo indicated that this is for the Contractor's information and their participation is strictly voluntary.

**Action plan:** This is for the team's information and no action is necessary

### **Bulb Tee Grout keys and Wet Joint Concrete Compressive Strength**

Mo relayed a request from the WSDOT/Northwest precasters annual meeting concerning the compressive strength of grout for the Bulb Tee girders. Std. Specs 6-02.3(25)O is being changed. The compressive strength of the grout in the keys will increase from 4 ksi to 5 ksi. Ryan noted that there is only one approved product for grout in the QPL. Also, the cip wet joint concrete in many cases is in excess of 5 ksi. Can this indicated strength create any problems in the field? The consensus was that compressive strengths up to 5 ksi are achievable without much difficulty. Ryan also indicated that one of their projects in Kitittas County

required 6 ksi deck concrete. He said that they achieved the strength but the concrete set up very fast.

**Action plan:** The team recommends concrete and grout compressive strengths up to 5 ksi can easily be achieved. Higher compressive strengths have been achieved in the past. Location and mix design are key to achieving higher strengths. No further action by the team is necessary.

### **Safety Concerns with Use of WWF in Pre-stressed Girders with the Latest Girder Stirrup Details**

Mo asked the team if the WWF rebar ends sticking out above the girders would pose a safety concern and would need to be protected? The use of WWF was requested by one fabricator and approved by the State. WWF cost more than regular rebars but may take less placement time. The general consensus was that if one horizontal wire is placed as close as possible from the top of vertical wires, say 1/4", it won't pose a safety concern.

**Action plan:** Bridge Design is still evaluating use of WWF with the new stirrup details. No action by this team is needed.

### **Rebar Embedment, Discussion Topic #23**

Tom expressed a concern about a discrepancy between the manufacturer's recommended embedment lengths for doweled rebars and the doweled lengths in State plans. Generally, the plans required drilled lengths are twice the manufacturer's recommended depth. Scott indicated that they performed tension pull out tests in a 4" shotcrete wall at the NE 40<sup>th</sup> project. For all tests performed, the concrete would fail first before the epoxy bond. One possible explanation for the longer dowel lengths may be the long term creep concerns. Tom also suggested that a chart for embedment lengths would be preferable to detailing it in multiple locations on plans.

**Action plan:** Jim agreed to tackle this issue next and provide a recommendation to the team

### **New Vibration Limits Spec**

Jim presented his draft proposal for this Spec to the team. His recommendation is based on 24 research papers on this topic. The following is a summary feed back from the team:

- Indicate distance limits and time for when a monitoring device is needed
- A chart would be beneficial
- Indicate that the Contractor is responsible for monitoring
- Clarify that this Spec is not intended for pile driving and shaft drilling

- Delete item #4, “from 3 days to 7 days....”

**Action plan:** Jim will update the draft Spec based on the comments above and finalize the spec for the next meeting. Ryan will research monitoring rental cost.

#### **Use of Pre-cast Pre-stressed Tubs on Skewed Structures, Discussion Topic #15**

Dan indicated that stirrups larger than #5 rebars should not be used in any precast members. Application of heat to each stirrup during field bending is impractical and can damage the surrounding concrete. Also, Charlie mentioned that placement of transverse bars along the skew interfere with the girder stirrup hooks and diminish the 2.5” cover requirement and necessitate a deeper deck thickness.

**Action Plan:** Jugesh will look into not allowing for the top transverse rebars to be placed along the skew in the BDM. No Further action on this topic by the team is needed.

#### **Discussion Topic #6, Use of Tension Controlled Bolts in Bridges**

The State will allow use of the tension controlled bolts on a pilot project. Ryan has used them in the past with great success. Barry also agreed to use these bolts.

**Action Plan:** Jugesh and Mo will look for a future project to allow tension controlled bolts.

The meeting adjourned at 12:00 PM

**Next meeting is on July 16, 04**